Support Documents to

HYDROGEOLOGIC EVALUATION OF A SUBSURFACE OIL SPILL
at the
METAL BANK OF AMERICA INC. DISPOSAL SITE
PHILADELPHIA, PENNSYLVANIA

12 October 1978

Prepared By:
Roy F. Weston, Inc.

5992

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Well Fluid

Sampled By Moore/Bennett Date 5/25/78 Time 1600

Place Cottman Ave Pier

How Sampled _____

_____

_____

Sampling Conditions sunny, warm, breezy

_____

Sample preparation and handling pumps + hose washed with acetone + distilled deionized water - bottles prepared by PEP method - teflon cap liners

Sample Containers 1 - 1L bottle

Sample Size - 1 quart

Physical properties water/oil

_____

field parameters, pH _____ Temp. 56°F - 2 Other _____

_____

Sample identification, No. MB-BB Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

AR100101

2112

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: ______

Tele. No. ______

Sampling.

Type of Sample well fluid

Sampled By Moss / Benenati Date 5/26/78 Time 0834

Place Cottman Ave Pier

How Sampled Well pumped dry - let stand 5 min then sample pumped

Sampling Conditions sunny, breezy, warm

Sample preparation and handling pump + hose washed with acetone + double deionized distilled water bottles prepared by EPA method

Sample Containers 1 - 1l.

Sample Size 1 liter

Physical properties ______

field parameters, pH ______ Temp. 54°F - 1 Other ______

Sample identification, No. MB-B9 Code ______

Special instructions ______

Samples split with ______

Shipping

Sample delivered to: ______

Shipped by ______ How shipped ______

Carrier ______

Date ______ Time ______

Received by ______

AR100102

5944

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Fluid from well

Sampled By Hasselmann Date 5/25/78 Time 0930

Place Cottman Ave Pier

How Sampled Well pumped dry - let stand 5 minutes pumped sample into bottle

Sampling Conditions sunny, breezy, warm

Sample preparation and handling pump + hose washed with acetone and distilled double deionized water - bottle prepared by AB procedure

Sample Containers 1-L.

Sample Size 1 liter

Physical properties _____

field parameters, pH _____ Temp. 56°F - 2 Other _____

Sample identification, No. MB-B10 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

AR100103

5995

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Well Fluid

Sampled By Moore/Bienvenue Date 5/25/78 Time 0945

Place Cottman Ave. B Pier

How Sampled Well pumped empty - allowed to recover for 5 minutes + pumped into jar

Sampling Conditions foggy, warm, sunny

Sample preparation and handling hose and pump washed with acetone and distilled deionized water - bottles prepared by KB method

Sample Containers 1 - 1 l. bottle

Sample Size 1 liter

Physical properties water/oil

field parameters, pH _____ Temp. 54°F -1 Other _____

Sample identification, No. MB-B11 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

5596

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Well Fluid

Sampled By Horne/Brennati Date 5/26/78 Time 1042

Place Cottman & Ave. Pier

How Sampled well pumped dry allowed to recover 5 minutes + sample taken pumped

Sampling Conditions foggy, warm, sunny

Sample preparation and handling pump and line washed with acetone and distilled deionized water - bottles prepared by ACB technique

Sample Containers 1 - 1l. bottle

Sample Size - 1 liter

Physical properties water/oil

field parameters, pH _____ Temp. 54°F -1 Other _____

Sample identification, No. MG-612 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

5 17 1

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Well Fluid

Sampled By Morse/Brenati Date 5/26/78 Time _____

Place Cottman Ave Phila

How Sampled well pumped dry - allowed to recover 5 minutes - then sample pumped well allowed to recovered till 5 min pumped again

Sampling Conditions foggy warm sunny

Sample preparation and handling pump + hose washed with acetone and distilled double deionized water. bottles prepared by ACB method

Sample Containers 1 - 1l. bottle teflon cap line

Sample Size - 1 liter

Physical properties water/oil

field parameters, pH _____ Temp. 57.5°F -1 59.5°F -2 Other _____

Sample identification, No. MW-613 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

5998

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank
Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Well Fluid

Sampled By Moose/Buenati Date 5/25/78 Time 1225

Place Cottman Ave Pier

How Sampled well pumped dry - allowed to recover 35 minutes + then sample pumped

Sampling Conditions warm, breezy, sunny

Sample preparation and handling pump + hose washed with acetone and distilled deionized water - Bottle prepared by RB Method

Sample Containers 1 - 1l. bottle - teflon cap line

Physical properties water / oil

field parameters, pH _____ Temp. _____ Other _____

Sample identification, No. MB-B15 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

AR100107

6001

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Soil

Sampled By Moose Date 5/16/78 Time _____

Place MB-65

How Sampled SPT 140# 24"

Sampling Conditions raining

Sample preparation and handling all tools cleaned w/ acetone + dist. water

Sample Containers 1 - 1l. PCB bottle

Sample size 1 qt.

Physical properties _____

field parameters, pH _____ Temp. _____ Other _____

Sample identification, No. MB-65-S4 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

AR100108

60000

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample soil

Sampled By Moose Date 5/16/78 Time _____

Place MG-B5

How Sampled SPT 140# 24"

Sampling Conditions raining

Sample preparation and handling all tools cleaned w/ acetone + dist. water

Sample Containers 1 - 1l bottle PCB prepared

Sample size limited

Physical properties _____

field parameters, pH _____ Temp. _____ Other _____

Sample identification, No. MG-B5-S3 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

Rich Hazelkorn CL

5/25

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Motel Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Fluid from Well

Sampled By Alvos/Buenviati Date 5/25/78 Time 0824

Place Cottman Ave Pier

How Sampled Pumped well dry with pump and hose - waited 5 minutes and pumped for sampler - re full sample bottle closed, waited 5 min, pumped again

Sampling Conditions breeze from N. Sunny, warm

Sample preparation and handling Bottles prepared by EPA method - pump and hose washed w/ acetone and rinsed w/ double dist. deionized water

Sample Containers 1 - 1L.

Sample Size - 1 Liter

Physical properties water with oil

field parameters, pH _____ Temp. 58°F #1 Other _____

Thermometer #1

Sample identification, No. MB-B1 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

AR100110

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address:

Tele. No.

Sampling

Type of Sample Fluid from well

Sampled By Morse/Pecinati Date 5/26/78 Time 12:28

Place Cottman Ave Pier

How Sampled Pumped well for 5 minutes and could not drain completely - let well stand 2 minutes and began pumping sample - 1st pumps discarded

Sampling Conditions breezy, sunny, warm

Sample preparation and handling pump + hose washed with acetone and distilled water Bottles prepared by PCB procedure

Sample Containers 1 - 1l.

Sample size [illegible]

Physical properties water/oil

field parameters, pH Temp. 60°F Other

Sample identification, No. MB-B2 Code

Special instructions

Samples split with

Shipping

Sample delivered to:

Shipped by How shipped

Carrier

Date Time

Received by

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address:

Tele. No.

Sampling

Type of Sample Well Fluid

Sampled By Moore/Brunetti Date 5/25/78 Time 0900

Place Cottman Ave. Pier

How Sampled sample pumped from well.

Sampling Conditions warm, sunny, breezy

Sample preparation and handling bottle prepared by PCB method pump and hose cleaned w/ pesticide grade acetone and distilled deionized water

Sample Containers 1-1l. bottle

Sample size 1 liter

Physical properties water and oil

field parameters, pH Temp. 60°F #2 Other

Sample identification, No. MB-L3 Code

Special instructions

Samples split with

Shipping

Sample delivered to:

Shipped by How shipped

Carrier

Date Time

Received by

5788

Chain of Custody Documentation

Name of Project: Coast Guard

Company/Agency Involved: Metal Bank

Address:

Tele. No.

Sampling

Type of Sample: Well Fluid

Sampled By: Moore/Bencivenati Date 5/25/78 Time 1015

Place: Cottman Ave. Pier

How Sampled: sample well pumped dry - allowed to recover ~ 10 minutes sample then pumped out - 1st pumps allowed to drain - then next sampled

Sampling Conditions: sunny, warm, breezy

Sample preparation and handling: bottles prepared by PCB method pump and hose cleaned w/ acetone + distilled, deionized water

Sample Containers: 1 - 1l. bottle

Sample [illegible]

Physical properties: water + oil

field parameters, pH ______ Temp. 58°F #1 Other ______

Sample identification, No. MB-B4 Code ______

Special instructions

Samples split with

Shipping

Sample delivered to:

Shipped by ______ How shipped ______

Carrier

Date ______ Time ______

Received by

AR100113

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Well Fluid

Sampled By Kuse/Benenati Date 5/26/78 Time 0930

Place Cottman Ave. Pier

How Sampled pumped sample - well pumped 5 minutes - not emptied - waited 1 minutes and pumped sample

Sampling Conditions sunny, breezy, warm

Sample preparation and handling pump + hose washed w/ acetone + double distilled deionized water bottle prepared by RCB method

Sample Containers 1-1L.

Sample Size 1 Liter

Physical properties oil

field parameters, pH _____ Temp. _____ Other _____

Sample identification, No. MB-B5 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

AR100114

5170

Chain of Custody Documentation

Name of Project _____

Company/Agency Involved _____
Address: _____
_____
_____ Tele. No. _____

Sampling

Type of Sample _____

Sampled By Moose / Beninati Date 5/25/78 Time 1045

Place _____

How Sampled pump + hose washed with acetone and deionized double distilled water bottle washed by PCB method

Sampling Conditions sunny, breezy, warm

Sample preparation and handling well purged 5 minutes then allowed to stabil 1 minute - sample then purged

Sample Containers 1-1l.

Sample Size 1 quart

Physical properties oil

field parameters, pH _____ Temp. _____ Other _____

Sample identification, No. MB-B6 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

AR100115

5771

Chain of Custody Documentation

Name of Project Coast Guard

Company/Agency Involved Metal Bank

Address: _____

_____

_____ Tele. No. _____

Sampling

Type of Sample Well Fluids

Sampled By Moose / Benincasa Date 5/25/78 Time 1420

Place Cottman Ave. Pier

How Sampled well pumped 7 minutes - not dry - then allowed to stand approx. 1 minute and pumped sample - 1½ pumps were allowed to drain

Sampling Conditions sunny, warm, breezy

Sample preparation and handling pump + hose washed with acetone + rinsed with deionized double distilled water - bottles prepared by PCB method

Sample Containers 1-1l bottle

Sample Size 1 quart

Physical properties oil

field parameters, pH _____ Temp. _____ Other _____

Sample identification, No. MB-B7 Code _____

Special instructions _____

Samples split with _____

Shipping

Sample delivered to: _____

_____

Shipped by _____ How shipped _____

Carrier _____

Date _____ Time _____

Received by _____

Delivered to Rutgers
5/30/78

TABLE I

Polychlorinated Biphenyl Concentrations
in Well Fluid

Sample #	Aroclor	Concentration (µg/l)
5985	1016	32.0
5986	1254	104.0
5987	1242	101.5
5988	1248	35.8
5992	1016	104.0
5993	1016	21.0
5994	1016	42.4
5995	1016	31.4
5996	1254	79.6
5997	ND*	ND*
5998	ND*	ND*

TABLE II

Polychlorinated Biphenyls Concentration in Soils

Sample #	Aroclor	Concentration (mg/Kg - dry wt.)	% Moisture
5999	1242	22.6	16.9
6000	1016	46.3	18.6
6001	1016	17.8	19.9

CITY OF PHILADELPHIA

KENNETH J ZITOMER, P.E.
ACTING COMMISSIONER
AND CHIEF ENGINEER

WATER DEPARTMENT
1180 MUNICIPAL SERVICES BUILDING
PHILADELPHIA, PA. 19107

March 13, 1980

M. M. Bhatla, Ph. D., P.E. Project Manager
Roy F. Weston, Inc.
Weston Way
West Chester, Pa. 19380

Re: Your letters of February 12 and 22, 1980 concerning Metal Bank of America, Inc.

Dear Dr. Bhatla:

The groundwater from the Metal Bank property as described in the subject letters are unacceptable for discharge into the Philadelphia Sewer System.

Assuming that the majority of the 8 lbs. of PCB's would be discharged evenly over a 100 day period, during that period the increased concentration of the NEWPC Plant sludge could be expected to be about 0.8 ppm (dry wgt. basis); that is, assuming essentially 100 percent removal. Since the current PCB concentration of the NE sludge is about 0.7 ppm the Metal Bank contribution would approximately double the concentration. In addition, there is the possibility of higher peak values.

As you are aware the City is embarked upon an intensive program to phase out ocean disposal of its sludge. Increasing concern about "trace organics" including PCB's and the fact that the proposed Metal Bank discharge is a "controllable" not "background" source the acceptance of it could be extremely damaging. That is, particularly for public relations but also for regulatory agency considerations. It could also weaken any regulatory actions taken by the City against dischargers into the sewer system that affected sludge quality.

Regarding the cost, the current sewer charges (above minimum) are $2.27 per 1000 cu. ft. At 50 gpm this would be approximately $8,000 per year. Also, a meter would have to be provided to record the flow.

Very truly yours,

Thomas J. Kulesza

THOMAS J. KULESZA, CHIEF
INDUSTRIAL WASTE UNIT
WATER POLLUTION CONTROL DIVISION

TJK:rmk

WESTON
ENVIRONMENTAL CONSULTANTS DESIGNERS
WESTON WAY
WEST CHESTER, PA. 19380
PHONE: (215) 692-3030
TELEX: 83-5348

17 September 1979

Commander, Third Coast Guard District
Contract Section, Bldg. 125, Rm. 320
Governors Island, NY 10004

Attention: A. Cochran

Re: RFP 03-8170-79 dated 10 September 1979
"Study of PCB release from Metal Bank of America Property."

Gentlemen:

Our Proposal No. 1463 dated 24 August 1979 on the above subject, already submitted to you, is valid until 20 November 1979. We are resubmitting the same proposal in the enclosure in response to your subject Request for Proposal.

Very truly yours,

Roy F. Weston, P.E.
By: M. N. Bhatla, Ph.D., P.E.

MNB:ctr

Enclosure

SOLICITATION, OFFER AND AWARD

RATING	

CONTRACT (Proc. Inst. Ident.) NO.	2. SOLICITATION NO.	5 DATE ISSUED	6 REQUISITION/PURCHASE REQUEST NO.
	RFP 03-8170-79 ☐ ADVERTISED (IFB) ☒ NEGOTIATED (RFP)	10 Sept. 79	

7 ISSUED BY	CODE	8 ADDRESS OFFER TO (If other than Block 7)
Commander, Third Coast Guard District Contract Section, Bldg. 125, Rm. 320 Governors Island, NY 10004	fcp-1a	

In advertised procurement "offer" and "offeror" shall be construed to mean "bid" and "bidder"

SOLICITATION

Sealed offers in original and ONE copies for furnishing the supplies or services in the Schedule will be received at the place specified *if handcarried, in the depository located in* Block #7 until 4:00 PM *local time* 25 *(Hour)*

this is an advertised solicitation, offers will be publicly opened at that time.

CAUTION — LATE OFFERS: See para. 7 and 8 of Solicitation Instructions and Conditions.

l offers are subject to the following:

The Solicitation Instructions and Conditions, SF 33-A, (Rev. 7-77) edition which is attached or incorporated herein by reference.

[redacted]

3. The Schedule included herein and/or attached hereto.
4. Such other provisions, representations, certifications, and as are attached or incorporated herein by reference. *(Attachments are listed in schedule.)*

OR INFORMATION CALL (Name & telephone no.) (No collect calls) ▶ A. Cochran (212) 668-7111

SCHEDULE

9 ITEM NO.	11 SUPPLIES/SERVICES	12 QUANTITY	13. UNIT	14 UNIT PRICE	15
	Prepare concept designs and costs for various alternatives which will be used for controlling PCB releases from the Metal Bank of America, Inc Disposal Site, Phila., Pa.				

See continuation of schedule on page 4

OFFER *(pages 2 and 3 must also be fully completed by offeror)*

compliance with the above, the undersigned agrees, if this offer is accepted within 60 calendar days *(60 calendar days unless a diff* *erted by the offeror)* from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set *n*, delivered at the designated point(s), within the time specified in the schedule.

DISCOUNT FOR PROMPT PAYMENT *(See par. 9, SF 33-A)* — % 10 CALENDAR DAYS — % 20 CALENDAR DAYS — % 30 CALENDAR DAYS — % CALENDAR DAYS

17. OFFEROR	CODE	FACILITY CODE	18. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN *(Type or print)*
NAME AND ADDRESS *(Street, city, county, State and ZIP code)*	ROY F. WESTON, INC. WESTON WAY WEST CHESTER, PA 19380 CHESTER CO.		M. Bhatla, Vice President
AREA CODE AND TELEPHONE NO ▶			19 SIGNATURE: Mmohan N. Bhatla — 20 OFF: 9/2

☐ Check if remittance address is different from above — enter such address on Schedule.

AWARD *(To be completed by Government)*

ACCEPTED AS TO ITEMS NUMBERED	22 AMOUNT	23 ACCOUNTING AND APPROPRIATION DATA
		Oil Pollution Fund 69x5168 Case No. 1-7-0064

SUBMIT INVOICES *(4 copies unless otherwise specified)* TO ADDRESS SHOWN IN BLOCK #7	25 NEGOTIATED PURSUANT TO	10 U.S.C. 2304(a) ( )
		41 U.S.C. 252(c) ( )

ADMINISTERED BY *(If other than Block 7)*	CODE	27 PAYMENT WILL BE MADE BY	CODE

NAME OF CONTRACTING OFFICER *(Type or print)*	29. UNITED STATES OF AMERICA	30 AM
	BY AR100120 *(Signature of contracting officer)*	

Weston (MBA)

WESTON
ENVIRONMENTAL CONSULTANTS & DESIGNERS

24 August 1979

Captain J. R. Kirkland
Captain of the Port
Philadelphia
U. S. Coast Guard Base
Gloucester City, NJ 08030

Proposal No. 1463

Dear Captain Kirkland:

As a result of our project meeting on 14 August 1979 at Base Gloucester, Roy F. Weston, Inc. (Weston) is pleased to submit this proposal for continuation of consulting work performed by us as reported in our study report titled "Hydrogeologic Evaluation of a Subsurface Oil Spill at the Metal Bank of America, Inc. Disposal Site, Philadelphia, Penna."

BACKGROUND

In 1978, under contract no. DOT-CG03-7493, Weston had investigated the Metal Banks of America's (MBA) PCB spill site, and had defined the distribution of PCB's at the site at that time. Our report included an estimation of the quantity of oil containing PCB's, the extent of migration of subsurface oil, the concentration of PCB's, the extent of migration of subsurface oil, the concentration of PCB's in oil and groundwater, and the hydrogeological conditions at the site. As a result of the study, Weston estimated the potential release of PCB's from the Metal Banks' property. In addition, Weston's report of the study described several conceptual control measures for mitigating the release of PCB's from the site.

PURPOSE AND SCOPE OF PROPOSED STUDY

The purpose of the proposed study is to prepare concept designs and costs for the various alternatives which will be used for controlling PCB releases from the site. Data thus developed will provide various levels of PCB control for different levels of expenditure.

The effort under the proposed work scope will be directed only to the primary PCB-laden oil spill located at the South end of the property. Subsurface oil detected towards the North end of the property will not be considered in these control measures.

Weston realizes the potential problem from presence of PCB in bottom deposits in Delaware River along MBA property line; however, as directed by you in the 14 August meeting, this problem will not be addressed in this proposed project. As mutually agreed, due to the site constraints,

Weston will utilize already available state-of-the-art treatability data and will minimize field and laboratory development work for completing this proposed project.

The scope of the study will consist of evaluation and, as necessary, preparation of concept designs and estimated costs for various alternatives, including:

1. Subsurface oil removal and disposal.
2. Contaminated subsurface water removal, treatment, and disposal.
3. Reduction of water inflow to the site, considering both on-site and off-site water diversion.
4. Other applicable site management methods.
5. Site monitoring needs and costs.

For a better mutual understanding, a detailed description of the various project tasks is presented in the following paragraphs.

PCB SOURCE REMOVAL

The previous study established that there were approximately 21,000 gallons of oil pooled below the site, containing approximately 215 pounds of PCB's. This entrapped subsurface oil was the major source of PCB release via oil and water leaching.

Based on this previously developed knowledge, the following steps will generally be included under this alternative:

1. Subsurface water level and oil thickness updating.
2. Location(s) and number of oil recovery points.
3. Type of oil pumping system.
4. Size of well, pumping rate, and quantity and quality of material pumped.
5. Up to two activated carbon adsorption isotherms for PCB's, COD and BOD to confirm order-of-magnitude kinetics for the various parameters and to predict treated water quality.
6. Field STS test(s), oil gravity, and qualitative laboratory tests for oil-water emulsion breaking, as necessary.

7. Definition of oil/water separation system, and water treatment process. Conceptual flow diagrams will be developed.

8. Definition of oil and water disposal methods.

9. Capital and operating cost estimation for an oil removal system.

Testing for priority pollutants in the groundwater at the site is not contemplated at present because this could be addressed during the implementation phase of the project.

INFLOW WATER REDUCTION TO AND THROUGH THE SITE

There are three water inputs to the site, namely:

1. Rainwater infiltration.

2. Off-site surface runoff onto the site.

3. Upgradient groundwater flow to site.

Under the inflow reduction alternative, evaluation of the following will be included:

1. Selection of the optimum method for making the site impermeable from techniques such as surface paving, regrading, and providing a clay liner with vegetation. This will include estimation of storm water quantity and its satisfactory drainage from the site.

2. Diversion of off-site runoff plan as necessary.

3. Cost estimate for the selected surface water drainage methods as applicable.

4. Evaluation of the need and practicality of groundwater diversion from the site, and determination of costs, as necessary.

It is understood that Weston will work with the existing topographic information available for the site, and no attempt will be made to resurvey the site.

SITE MANAGEMENT

Site management needs will be defined. These may include items such as identification of disposal areas, monitoring of surface runoff and groundwater quality, tentative use of site, and any maintenance requirements for the site. Weston will estimate costs for necessary site management to provide effective control of the site and long-term monitoring.

SUMMARY REPORT

Results of all steps will be summarized as a final chapter to our existing report. Cost estimates will be presented in a manner so that different levels of mitigation can be identified with costs. Ten copies of the summary report will be submitted to the U. S. Coast Guard as a part of this contract.

PROJECT MEETINGS

Two project meetings (four man-days) are allowed within the scope of this project. These will be used for reporting project progress and project results.

CONSULTATION

During the course of the project or following completion of the project, Weston personnel may be required to consult with EPA, state regulatory agencies, or local authorities. We have allowed four man-days for these activities under the scope of this proposal. Additional time, if needed, will be charged at our current hourly rates, plus out-of-pocket expenses reimbursement.

BUSINESS PROPOSAL

It is proposed that the outlined project be performed on the basis of hourly charges for personnel, plus direct expenses. It is expected that the services outlined herein can be accomplished for the ESTIMATED PROBABLE COST. Only those costs incurred will be charged. To avoid misunderstanding, it should be emphasized that the ESTIMATED PROBABLE COST is our best estimate based on the knowledge of scope of work at this time.

Manpower Cost	-	$26,650
Expenses	-	3,250
ESTIMATED PROBABLE COST	-	$29,900

Work on this project can be initiated within 15 calendar days of approval of our work scope, and completed within 90 days thereafter.

A list of our current hourly rates is attached. Our applicable laboratory analytical analysis rates are also attached.

PROJECT PERSONNEL

The following personnel will be assigned to this project to maintain continuity with our past activity at the site, and to allow access to the site to a limited number of staff. Biographical sketches of these personnel are presented at the end of this proposal.

W. M. Leis, P.G.	-	Project Director
M. N. Bhatla, Ph.D., P.E.	-	Principal Investigator
M. H. Corbin	-	Senior Project Engineer
J. C. Petura	-	Senior Project Engineer
R. D. Moose	-	Senior Project Scientist
R. Habrukowich	-	Project Scientist

Other conditions of this proposal are attached, and these "Terms and Conditions of Contract" are hereby made a part of this proposal. To authorize us to proceed, kindly forward a letter of authorization referring to this proposal.

We cannot over-emphasize our experience and enthusiasm to undertake this phase of activity on this important project.

Very truly yours,

ROY F. WESTON, INC.

M. N. Bhatla, Ph.D., P.E.
Vice President

W. M. Leis, P.G.
Manager, Earth Sciences

MNB:WML:ctr

Attachments

1 - Hourly Rate Charges
2 - Laboratory Price List
3 - Biographical sketches
4 - General Terms and Conditions

WESTON

LABORATORY PRICE LIST

Analysis	$/Analysis
PCB	$ 95.00
BOD_5	15.00
COD	11.00
pH, Acidity/Alkality	11.00
% Solids	5.50

BY _____ DATE _____ WESTON SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT U.S.C.G.

SUBJECT RECOVERY

Two Recovery wells may be in needed to recover the oil

The success of using retrieval wells depends on the proper construction of recovery wells. The recovery wells should be properly constructed, gravel-packed and installed with suitable screen to provide maximum open area. The design of proposed recovery well is attached.

It is proposed to drill these wells (12 to 20 inches in diameter) at least two to three feet into the clay layer to allow sufficient room to install the pump. Solid casing should be installed opposite this clay bed to house the pump. The entire aquifer should be screened with about one to two feet of screen rising above the normal water table to accomodate any fluctuation of levels of water and oil. All wells should be gravel-packed well above the screen level and the backfilled with native soil. The wells should be constructed under the close supervision of a qualified hydrogeologist with oil recovery experience to insure proper installation and functioning of these wells.

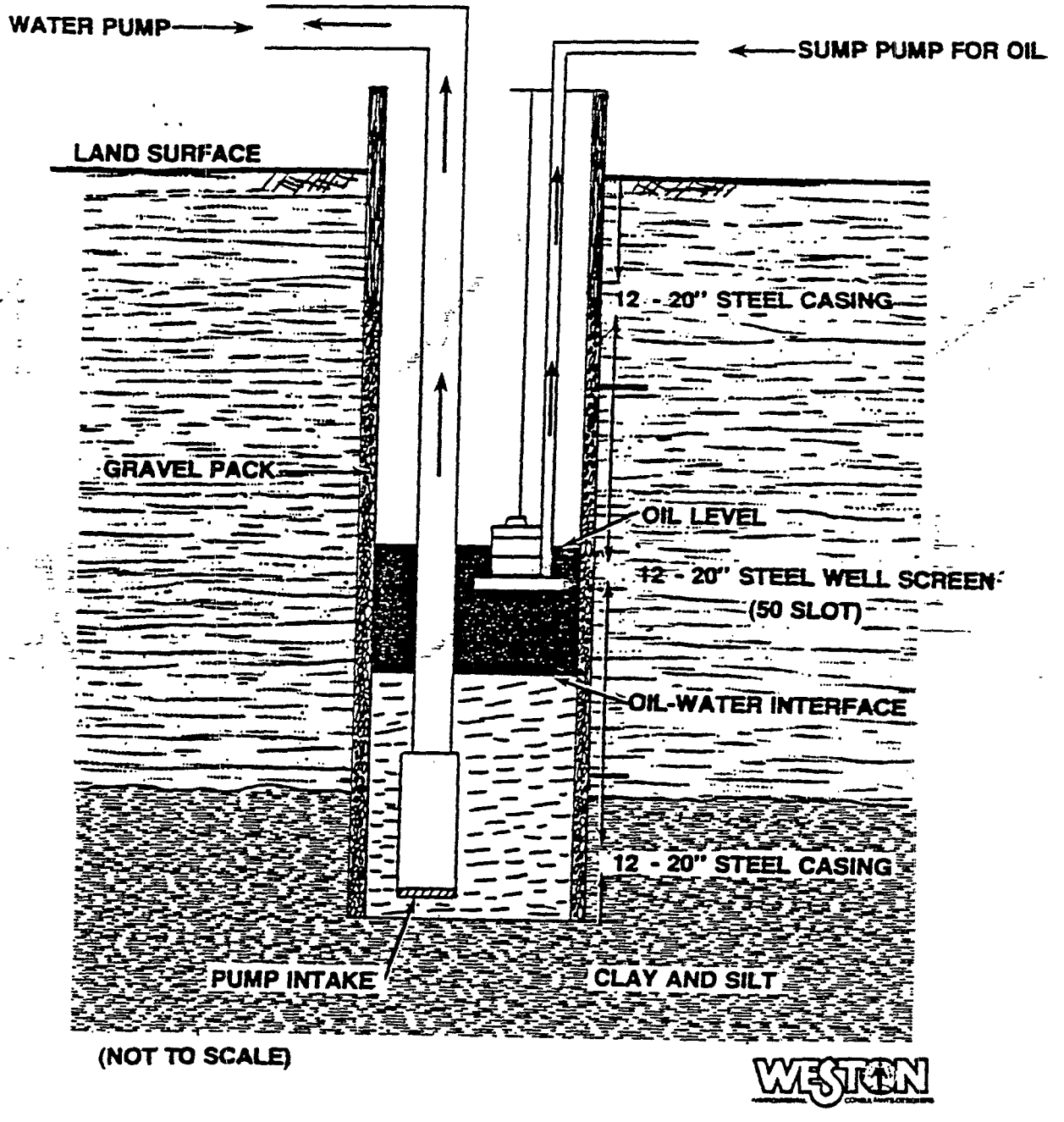
The recovery wells should be equipped with separate pumps for pumping water and oil. A submersible pump of the size needed for each well to create the depression in the water table should be installed at the bottom of the well to pump clean water. The expected pumping rate of water varies from 30 to 50 gallons per minute. A sump pump should be installed with the intake set about 2 to 3 inches above the oil/water interface to pump oil. The ~~sump pump~~ suitable should be capable of pumping one to five gallons per minute. Figure 6-1 shows the design of a proposed recovery well with the settings of both oil and water pumps. The clean water should be pumped continuously to maintain the cone of depression. The oil should be pumped out periodically as it builds up in the well. The pumping of water and oil could be automated using float arrangements

BY _____ DATE _____ WESTON SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT U.S.C.G

SUBJECT _____



AR100128

DATE _____ WILSON SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT U.S.C.G

SUBJECT OIL THICKNESS IN WELLS

12/11/79

WELL #	OIL THICKNESS AS REPORTED IN ORIGINAL REPORT (ft)	OIL THICKNESS MEASURED ON 12/11/79. (ft)
MB-B1	- 0.1	NIL
" B2	- 0.3	WELL DRY
" B3	- 0.2	NIL
B4	- 0.2	0.30
B5	- > 2.1	> 1.00
B6	- > 2.0	0.16
B7	- > 3.2	> 0.62
B8	NIL	WELL DESTROYED
B9	NIL	WELL DESTROYED
B10	NIL	NIL
B11	0.3	NIL
B12	NIL	NIL
B13	NIL	NIL
B14	NIL	WELL DESTROYED
B15	0.3	" " "
B16	1.4	TRACE
B17	0.1	NIL
B18	0.1	NIL
B19	5.1	0.80
EPA-1	0.2	NIL
" - 2	0.2	NIL
" - 3		

AR100129

BY _____ DATE _____ WILSON SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT _____

SUBJECT U.S.C.G.

AVERAGE OIL THICKNESS IN METAL BANK } $\frac{1.+.62'+0.30+0.80}{5} = 0.5$

TOTAL AREA OF OIL ACCUMULATION } 37,937 ft^2

ASSUMING 5% POROSITY OF FILL MATERIAL

THE VOLUME OF SUBSURFACE OIL

IS 8172 gallons

ASSUMING 10% POROSITY OF FILL MATERIAL

THE VOLUME OF SUBSURFACE OIL

IS - 16345 GALLONS

NOTE : IT SEEMS THAT THE OIL POOL HAS SHIFTED FROM ITS ORIGINAL POSITION. WELL # MB-B-5 HAD ONLY OIL IN IT. IT IS HARD TO DETERMINE THE EXACT LOCATION OF THE POOL USING THE EXISTING WELLS. FIVE OF THE ORIGINAL WELLS HAD BEEN DESTROYED ONE WELL WAS FILLED WITH DIRT. THIS SITUATION MAKES IT RATHER DIFFICULT TO COMPARE WITH THE ESTIMATION ORIGINALLY MADE.

BY _____ DATE _____ SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

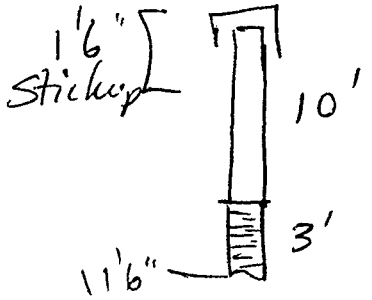
PROJECT _____ 6/7/78

SUBJECT _____

#18 — natural matl 13'6"
sample 1

#19 — natural, matl 16'-16'6"
sample 1

#16 — fill T.D. 11'6"
W.L. 8'6"

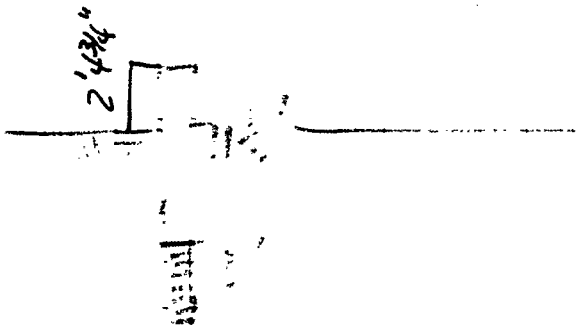


Construction

Sample 1 3.5-5.0
Sample 2 8.5-10.5

#17 —

2 samples 3.5-5.0 & Sand
Sample 1 8.5-10.5



AR100131

BY _____ DATE _____ WESTON ENVIRONMENTAL CONSULTANTS·DESIGNERS SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT _____

SUBJECT _____

Fishermen off end of pier
V80-971 Blue Chev. Sta Wagon

0950-0955 parked near Homer disposal area, turned + left

MB-B14

S1 - Surface
auger to 3.5
S2 3.5-5.0 13-12-11
silt & sand & brick
auger to 8.5
S3 8.5-10.0 18-16-16
auger to refusal at ~10'8"

Well point installation
8' pipe + 3' screen (No cap on bottom)

BY_____ DATE_____ WESTON ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET_____ OF_____

CHKD BY_____ DATE_____ W.O. NO._____

PROJECT_____

SUBJECT_____

MB-B3 : 7" GLD

11 5"

2'10" - 3'1" oily

MB-B?

13'

3'2" oily (heavy)

MB-B2 13' TOC 7½" GLD

1" 2" TOC

14'2"
3'10"
10'4"

2'4" oily (light)

MB-B-~~B~~15 Fluid level 2'2" GLD

Bottom of casing 8' ~~10~~ 4"

2½" oil zone

CASING BROKEN ON TOP

C

Sample taken at 2:20

Pump & hose rinsed

with acetone & D.W.

AR100133

BY______ DATE______ **WESTON** ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET______ OF______

CHKD BY______ DATE______ W.O. NO.______

PROJECT______

SUBJECT______

5/26/81 water level sounding

MB-B5 Top of liquid 9'0" G.L.D.
Bottom of well 11'11" G.L.D.
last 3'1" of tape was oil coated (heavy)

EPA Well near [illegible] pad

Liquid Level 7'1" TOC
Bottom of Well 12'9½" TOC
no oil on tape

EPA Well near Del [illegible]

Liquid Level 9'1/2" TOC
Bottom of Well (soft mud) 11'½" TOC
2½" oil layer 2'1½" - 2'4" on tape

MB-B6 9'9" GLD liquid level
12'1" GLD bottom of casing
2'6½" oil coated (heavy)

MB-B4 10'1½" GLD
13'7" GLD 3'3½" oil 1½" thic[k]

AR100134

WESTON
ENVIRONMENTAL CONSULTANTS-DESIGNERS

BY ______ DATE ______ SHEET ______ OF ______

CHKD BY ______ DATE ______ W.O. NO. ______

ROJECT ______

SUBJECT 25

5/4/78 [illegible]

~~[illegible]~~

Temperature

14 - [illegible]

1	58.0	#1
2	[illegible]	[illegible]
3	[illegible]	[illegible]
4		
5	OIL	
6	OIL	
7	OIL	
8	[illegible]	[illegible]
9	[illegible]	[illegible]
10	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	NO WATER	
15	[illegible]	[illegible]

Calibration T-1

#2

AR100135

BY _____ DATE _____ WESTON ENVIRONMENTAL CONSULTANTS DESIGNERS SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT _____

SUBJECT _____

MB-B12

S-4 con't Brick, lumber, black silty gravel fill - saturated w/ water - no oil seen

T.D 15'

3' screen + 12' pipe installed

5/18/78 Installed screen in MB-B12

MB-B-13

S1 Surface auger to 3.5

S2 3.5-5.0 7.6.6 SPT 6" Rec White sand, red brick, black cinders

auger to 8.5'

S3 8.5-10.0 red brick

auger to 13.5'

13" of oil on bit - natural, some oil in silty water

S4 - dark silty sand, bleached with water and some oil

12' casing + 3' screen

BY RDM DATE 5/17/78 WESTON ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET ____ OF ____

CHKD BY ____ DATE ____ W.O. NO. ____

PROJECT Coast Guard

SUBJECT Metals Bank

MB-B11

S1 Surface
augered to 8.5'
S2 8.5 - 10.0
16-12-14
mud line on sample spoon 22"
10" rec.
silty sand and debris
reddish brown 0 - 2½"
yellow 2½ - 3½"
grey-green 3½ - 7½"
black silt 7½ - 10"

13.5
oil on bit 56 + 8"
64" 5'4"
8'2" 5'3"

drove 12" sample 6.4

no recovery
oil on bit 12' pipe + 3' screen used

MB-B12

S1 - Surface
S2 - 16 - 9.5
8.5 - 10.0 ft. spoon wet (water 18')
S2 - lead ball
S3 - wood, dark silt, yellow sandy gravel
augered to (fill) 13.5 ft - bit wet 36" - Δ w.l.
S4 - 11 - 15 - 33 13.5 - 15.0 ft.

AR 100137

BY ____ DATE ____ WESTON ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET ____ OF ____
CHKD BY ____ DATE ____ W.O. NO. ____
PROJECT ____
SUBJECT ____

MB-B7

0-8½ augered

8½-10 22-20-14 SPT Rec.
spoon wet
layers of yellow sand, brick, silty gravel (black)
no oil
augered to 13.5'
43" of water, oil in 1 A rod
13.5-15' wet sample - no oil
apparent. Wood, fill, brick, gravel
dark color
well installed to 13.5'
12' pipe + 3' screen

MB-B10

augered to 8.5' no water
augered to 13.5' water + ? possible oil
57½" up the rods
well installed to 13½'
12' pipe + 3' screen

AR100138

BY ____ DATE ____ **WESTON** ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET ____ OF ____
CHKD BY ____ DATE ____ W.O. NO. ____
PROJECT ____
SUBJECT ____

MB - B7 5/17/78

augered to 13'6"
removed rotary bit from hollow stem
oil stained ~18"
drive sample 12" 6-4 (SPT)
rec. 4" oil saturated soil
oil stain on spoon 39" + 12" on A rod.

12.0
10' 5¾"
51"
10' 3"

set screen and casing to 13'6"
screen + 12' pipe used

MB-B8

Surface sample S1
paper, ceramics, steel, etc.

augered to 8.5' encountered very hard zone at 7' - end plugged up - difficult drilling
20-20-32 SPT 140# 24" cloth may have clogged bit
8.5'-10.0'
water at ~ 20" up spoon
~~Drilling Water Level 8.25'~~
no water in hole when sounded
concrete, metal debris (slag) silt & gravel (dark)

drilled to 13.5'
water at 34½" from bit

well screen + 12' pipe installed

F31 920 Dodge Colt Yellow 2 men / woman
USEPA?
9:50 am

BY _____ DATE _____ SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT _____

SUBJECT _____

Surface S1

(3.5 - 5.5 ft) S2

20-15-7 A

(8.5 - 10.5') S3

10-10-9 110 dup

WESTON
ENVIRONMENTAL CONSULTANTS-DESIGNERS

BY ____ DATE ____ SHEET ____ OF ____
CHKD BY ____ DATE ____ W.O. NO. ____
PROJECT ____
SUBJECT ____

MB B5

3½-5 17-12-10 52

5-10 5-5-6 53 brick in sample

10'-11.5' 54

ended in wood 12'

5-6

Surface sample 51
Rock or Concrete @ 5'
8.5-10' 11-8-13 52 gravel reddish sand
10-10'5" 100/5" 53 wood frags.
gravel over black silt w/ steel slag
auger refusal at 13'6"
[illegible] up with 20" [illegible]

AR100141

13'6" 13'-8" 13'-10"

BY Moose DATE 5/16/78 WESTON ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET ______ OF ______
CHKD BY ______ DATE ______ W.O. NO. ______
PROJECT ______
SUBJECT ______

MB-B3

sfc. silty sand fill (black)
~2.0 large boulder
3.5-5.0 ft 10-5-12
4" rec. black silty sand
2-1-taps spoon wet
8.5-10.0 ft had to drive 24" - spoon sank quickly
18" rec.
water ~10' on spoon sides
black silty sand fill w/ multi-colored plastic bits at top 6"
black silty sand below, trace gravel

T.D. 11'6"
Screen 8'6-11'0

MB-B4
sfc. asphalt

3'6"-5 5-1

8'6"-10' 9-7-5 5-2
5-3

11'6"-13' 10-7-3 5-4

[illegible] on augers

T.D. drilled 14'
screen 11'-14'

AR100142

BY _____ DATE _____ WESTON ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT _____

SUBJECT MB-B-2

0-8½' miscellaneous fill – wood, auto parts, brick

8'6"-10'0" SPT 140# hammer 24" drop
4-6-30 last 6" timber

10-13'6" augered damp, but no standing water in hole. – dry after 5 min
sample – silty fine sand w/ some gravel brick fragments (dry) at bottom

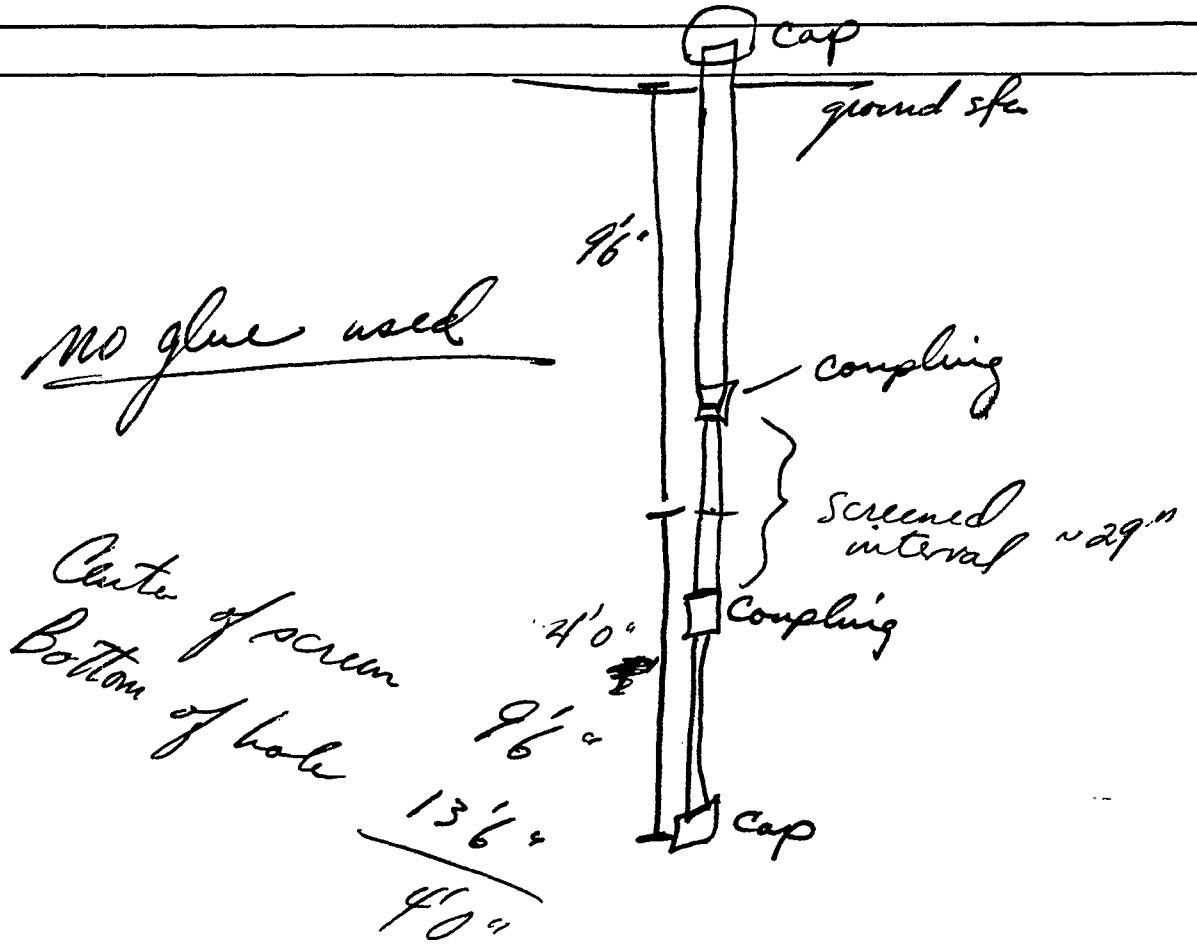
13'6"-15'0" SPT 5-3-13

BY _____ DATE _____ WESTON ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT _____

SUBJECT _____



USEPA representatives arrived ~ 1:08

departed before 2:00

9'6"
1'3"
8'3" → 10'9"

BY _____ DATE 5/12/78 WESTON ENVIRONMENTAL CONSULTANTS-DESIGNERS SHEET _____ OF _____

CHKD BY _____ DATE _____ W.O. NO. _____

PROJECT _____

SUBJECT _____

Boring B-1 well point construction

point 34" overall
29" screen
cut off 1st bottom screened portion, because of glue from well point.

BY L Moose DATE 5/12/78 SHEET ____ OF ____

CHKD BY ____ DATE ____ W.O. NO. ____

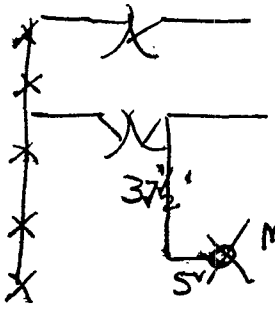
PROJECT Coast Guard

SUBJECT Metals Bank

Metals Bank

Boring MB-B-1

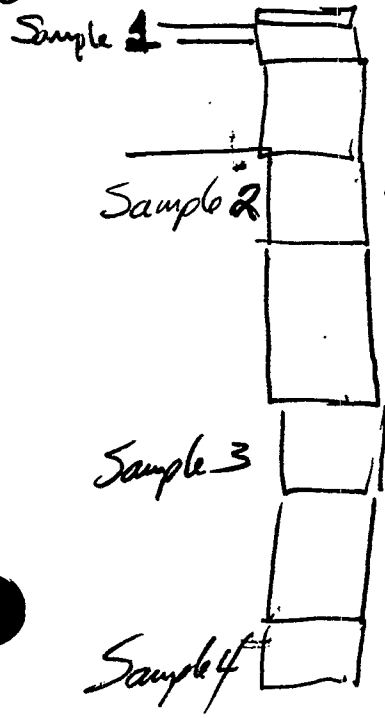
1153 - Advised Gillespie + helper to wear hard hats - Gillesp said he didn't bring. Leis said we would provide. I offer him mine. he declined.



MB-B-1 Start 1142 5/12/78

Log of Boring B-1

SPT 140# hammer 24" drop



1" black gravelly sand fill

5" brown med sand (well sorted)

6"-3'6" augered - bit started wandering @ 6" - lumber or rock

3'6"-5'0" ~~REC 6"~~ 1st 6" - clogging auger bit

? - 6 - 15 - bouncing on last 6"

REC 6"

5'-8'6" augered smooth

Gravelly sand w/ lumber oil smell out of auge stem

REC 14"

8'6"-10'0" 7-11-17

fine grained dark grey silt with wood light beige laminae 4" thick top at 8" from top of sample dark grey silt below. (both in sample

10'-13'6" augering softer material at 10'6"

dark silt w/ some gravel 16" rec. - still looks like dredged material

13'6"-15'0"